

We claim:

1. A diverse interpolymer composition comprising
 - (A) from about 5 percent (by weight of the total composition) to about 95 percent (by weight of the total composition) of at least one first ethylene 5 interpolymer, and
 - (B) from about 95 percent (by weight of the total composition) to about 5 percent (by weight of the total composition) of at least one second ethylene interpolymer;
 - wherein the first interpolymer is characterized as comprising a different 10 comonomer relative to the second interpolymer;
 - wherein one interpolymer is a homogeneously branched ethylene interpolymer and the other interpolymer is a heterogeneously branched ethylene interpolymer or a homogeneously branched ethylene interpolymer, and
 - wherein the composition is characterized as having a density greater than or 15 equal to 0.90 g/cm³.

2. The composition according to Claim 1 wherein the first interpolymer is a homogeneously branched linear ethylene interpolymer.

20 3. The composition according to Claim 2 wherein the homogeneously branched ethylene interpolymer has a slope of strain hardening coefficient greater than or equal to about 1.3.

25 4. The composition according to Claim 1 wherein the second interpolymer is heterogeneously branched ethylene interpolymer.

5. The composition according to Claim 4 wherein the heterogeneously branched ethylene interpolymer is a heterogeneously branched linear ethylene interpolymer.

30 6. The composition according to Claim 1 wherein the first interpolymer is a substantially linear ethylene interpolymer characterized as having:

- (a) a melt flow ratio, $I_{10}/I_2 \geq 5.63$,
- (b) a molecular weight distribution, M_w/M_n , as determined by gel permeation chromatography and defined by the equation:

$$(M_w/M_n) \leq (I_{10}/I_2) - 4.63,$$

- 5 (c) a gas extrusion rheology such that the critical shear rate at onset of surface melt fracture for the substantially linear ethylene interpolymer is at least 50 percent greater than the critical shear rate at the onset of surface melt fracture for a comparative homogeneously branched linear ethylene interpolymer, wherein the substantially linear ethylene interpolymer and the homogeneously branched linear ethylene interpolymer comprise the same comonomer or comonomers, the homogeneously branched linear ethylene interpolymer has an I_2 and M_w/M_n within ten percent of the substantially linear ethylene interpolymer and wherein the respective critical shear rates of the 10 interpolymers are measured at the same melt temperature, under the same nitrogen load using a gas extrusion rheometer, and
- 15 (d) a single differential scanning calorimetry, DSC, melting peak between -30° and 150°C.

20 7. The composition according to Claim 1 wherein the first interpolymer is a homogeneously branched linear ethylene/α-olefin copolymer.

8. The composition according to Claim 1 wherein the first interpolymer is a substantially linear ethylene/α-olefin copolymer.

25 9. The composition according to Claim 1 wherein the second interpolymer is a heterogeneously branched ethylene/α-olefin copolymer.

30 10. The composition according to Claim 1 wherein the first interpolymer or second interpolymer is a copolymer of ethylene and 1-octene and the other interpolymer is a copolymer of ethylene and 1-pentene.

11. The composition according to Claim 1 wherein the first interpolymer or second interpolymer is a copolymer of ethylene and 1-octene and the other interpolymer is a copolymer of ethylene and 1-butene.

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12. The composition according to Claim 1 wherein the first interpolymer or second interpolymer is a copolymer of ethylene and 1-octene and the other interpolymer is a copolymer of ethylene and 1-hexene.

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13. The composition according to Claim 1 wherein the first interpolymer or second interpolymer is a copolymer of ethylene and 1-octene and the other interpolymer is a copolymer of ethylene and 1-heptene.

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15. The composition according to Claim 1 wherein the composition is further characterized as having an intrinsic tear value greater than or equal to 150 grams, as determined in accordance with ASTM D-1922, Method A.

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15. The composition according to Claim 1 wherein the composition is further characterized as having an intrinsic tear value greater than or equal to 200 grams, as determined in accordance with ASTM D-1922, Method A.

16. The composition according to Claim 1 wherein the composition is further characterized as having a slope of strain hardening coefficient (SHC) greater than or equal to 0.85.

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17. The composition according to Claim 1 wherein the composition is further characterized as having a slope of strain hardening coefficient (SHC) greater than or equal to 0.95.

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18. A diverse interpolymer composition comprising

(A) from about 5 percent (by weight of the total composition) to about 95 percent (by weight of the total composition) of at least one first ethylene interpolymer, and

5 (B) from about 95 percent (by weight of the total composition) to about 5 percent (by weight of the total composition) of at least one second ethylene interpolymer;

10 wherein the first interpolymer is characterized as comprising a different comonomer relative to the second interpolymer and as having a lower density relative to the second interpolymer; the second interpolymer is characterized as having a density less than or equal to 0.95 g/cm³;

wherein one interpolymer is a homogeneously branched ethylene interpolymer and the other interpolymer is a heterogeneously branched ethylene interpolymer or a homogeneously branched ethylene interpolymer; and

15 wherein the composition is characterized as having a density in the range of from greater than or equal to 0.90 g/cc to about 0.935 g/cc.

19. A film comprising the composition of Claim 1.

20. A fiber comprising the composition of Claim 1.

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21. A molding comprising the composition of Claim 1.

22. A coating comprising the composition of Claim 1.

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23. A profile comprising the composition of Claim 1.

24. A pouch comprising the composition of Claim 1.

25. A sealant film layer comprising the composition of Claim 1.

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26. A carpet backing comprising the composition of Claim 1.

27. A liner comprising the composition of Claim 1.
28. A shrink film comprising the composition of Claim 1.
- 5 29. A stretch film comprising the composition of Claim 1.
30. An extrusion coating comprising the composition of Claim 1.
31. A laminating film comprising the composition of Claim 1.
- 10 32. A rotomolding comprising the composition of Claim 1.
33. A sack comprising the composition of Claim 1.
- 15 34. The sack according to Claim 33 wherein the sack is a grocery sack.
35. A bag comprising the composition of Claim 1.
36. The bag according to Claim 35 wherein the bag is a merchandise
20 bag.
37. The pouch according to Claim 24 wherein the pouch is fabricated
using form-fill-seal (FFS) equipment.
- 25 38. The pouch according to Claim 37 wherein the equipment is a vertical
form-fill-seal unit.